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(71) Applicant(s)
The Louvre Company Limited
(Incorporated in the United Kingdom)

29-30 Fitzroy Square, LONDON, W1P 5HH,
United Kingdom

(72) Inventor(s)
Kenneth Galletly

(74) Agent and/or Address for Service
Withers & Rogers
4 Dyer's Buildings, Holborn, LONDON, EC1N 2JT,
United Kingdom

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None

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(54) A reflector for a light fitting

(57) A reflector for a light fitting, the reflector being constructed substantially from a resiliently flexible light-reflective material and including a resilient tongue (2, 30, 40) arranged such that the distal end of the tongue is wider than its proximal end, the tongue (2, 30, 40) being inserted through a slot (4, 32) whose length varies with its width between a length only slightly greater than the narrowest width of the tongue to a length significantly greater than the narrowest width of the tongue. Other embodiments have two tongues (22, 24) and several brace structures are described.

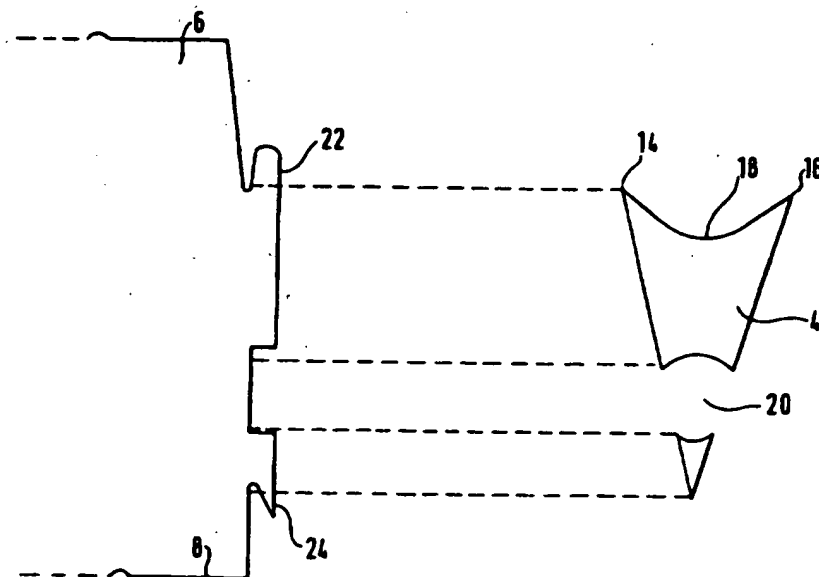


Fig.2A.

Fig.2B.

GB 2311 124 A



Application No: GB 9605342.6
Claims searched: 1-9

Examiner: S.I.Ahmad
Date of search: 29 April 1997

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK CI (Ed.O): F4R(RCAA)
Int CI (Ed.6): F21V-7/18, 7/22
Other: Data-Base: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
	No relevant document	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

CLAIMS

1. A reflector for a light fitting, the reflector being constructed substantially from a resiliently flexible light-reflective material and including a resilient tongue arranged such that the distal end of the tongue is wider than its proximal end, the tongue being inserted through a slot whose length varies with its width between a length only slightly greater than the narrowest width of the tongue to a length significantly greater than the narrowest width of the tongue.
2. A reflector according to claim 1, wherein the resiliently flexible material is a plastics-coated reflective metal foil.
3. A reflector according to claim 1 or claim 2, wherein the slot is generally V-shaped and is arranged to receive two tongues in a relatively V-shaped configuration.
4. A reflector according to any preceding claim, wherein the variation in length of the slot is achieved by forming an extension into the slot at the top of the V-shape, in the form of a segment of a circle.
5. A reflector according to any preceding claim, wherein the slot is divided into a plurality of slots by one or more cross members extending across the slot for receiving a tongue in each respective slot.

6. A reflector for a light fitting, the reflector being constructed substantially from a resiliently flexible light-reflective material and including a resilient tongue arranged such that the distal end of the tongue is wider than its proximal end, the tongue being engaged with a corresponding mouth arranged such that the entrance to the mouth is narrower than the widest part of the tongue and the width of the back of the mouth is only slightly greater than the narrowest part of the tongue.
7. A reflector according to claim 7, wherein the tongue extends from a first member which has shoulders formed either side of the proximal end of the tongue, and the mouth is formed in a second member which has corresponding shoulders formed either side of the entrance to the mouth, the shoulders of the first member being arranged to overlie the shoulders of the second member and the tongue being arranged to underlie the second member beyond the back of the mouth in the direction of extension of the tongue for the first member.
8. A reflector for a light fitting, the reflector being constructed substantially from a resiliently flexible light-reflective material and including a generally rectangular tongue extending from a first member and inserted beneath the rear of an indent formed in the edge of a second member adjacent the first member, the indent having a generally rectangular configuration only slightly larger than that of the tongue and the shoulders of the first member which are formed either side of the tongue, being arranged to lie over the corresponding

shoulders of the second member which are formed either side of the indent.

9. A reflector constructed and arranged substantially as herein described
5 with reference to the drawings.

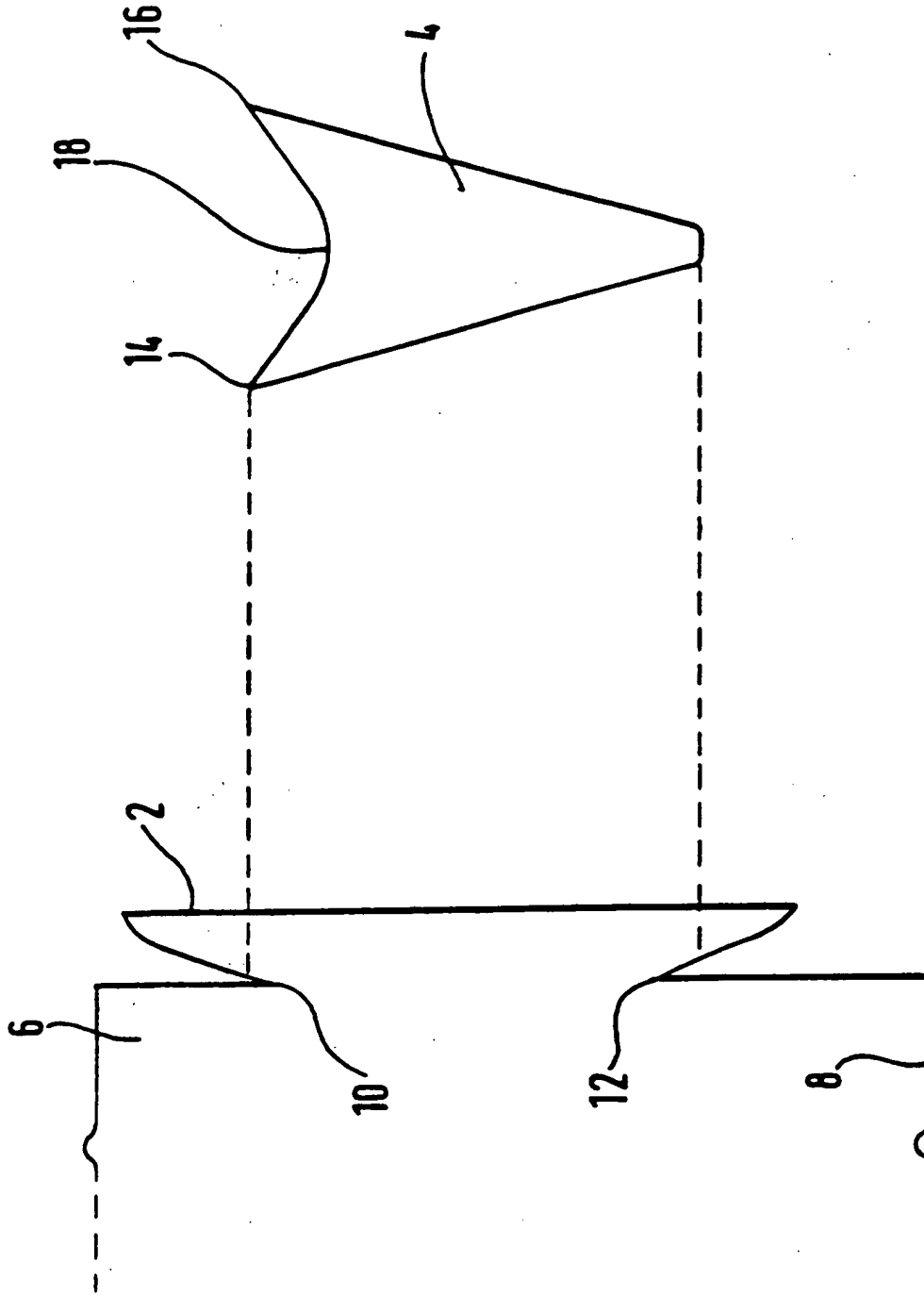


Fig.1B.

Fig.1A.

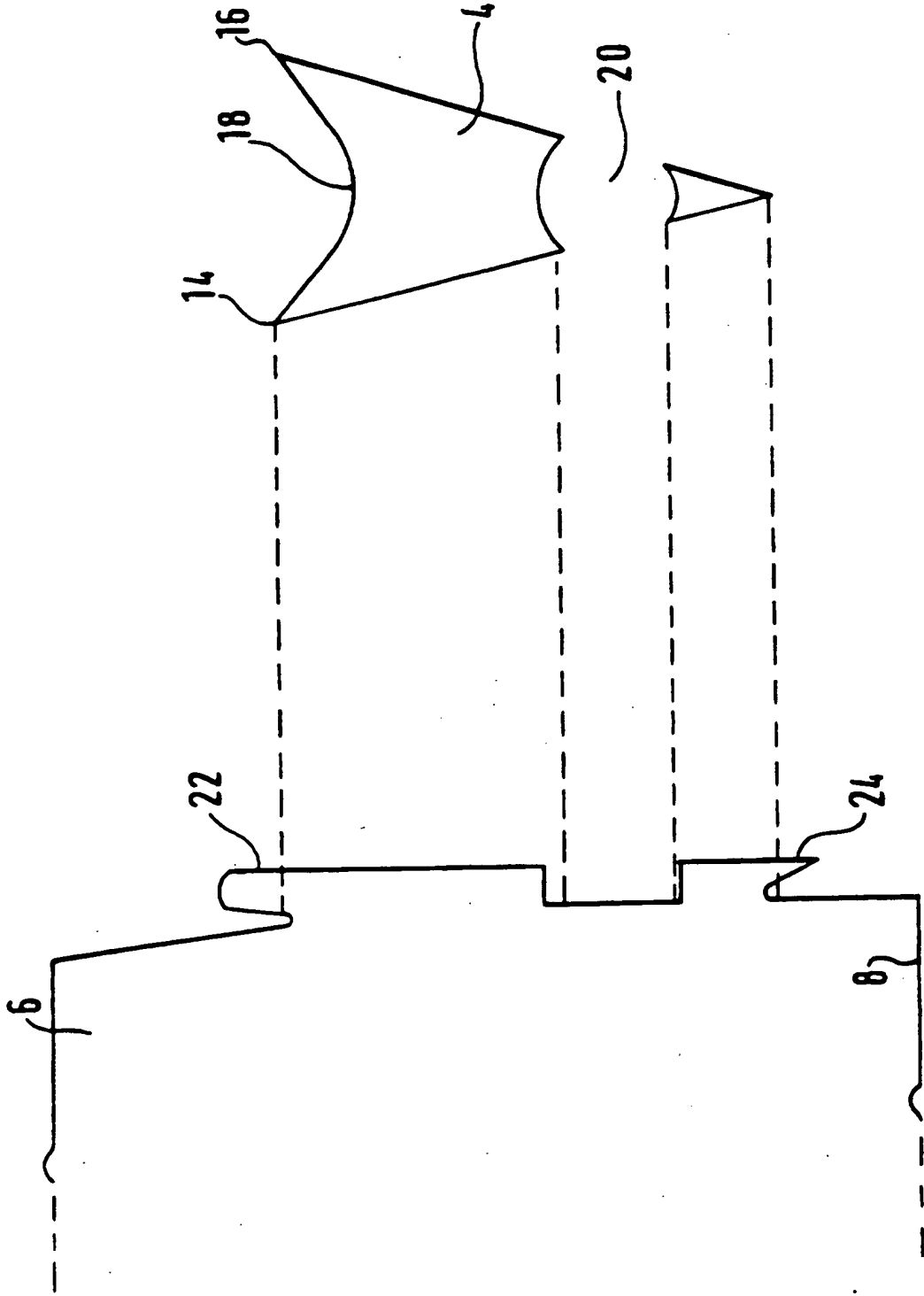


Fig.2B.

Fig.2A.

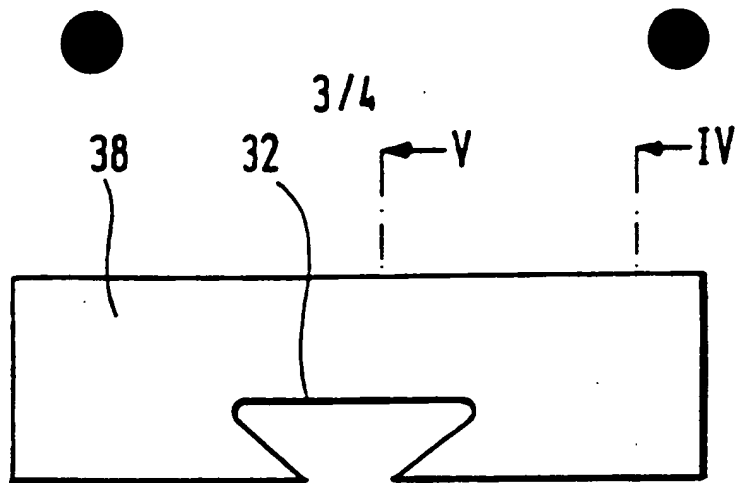


Fig. 3A.

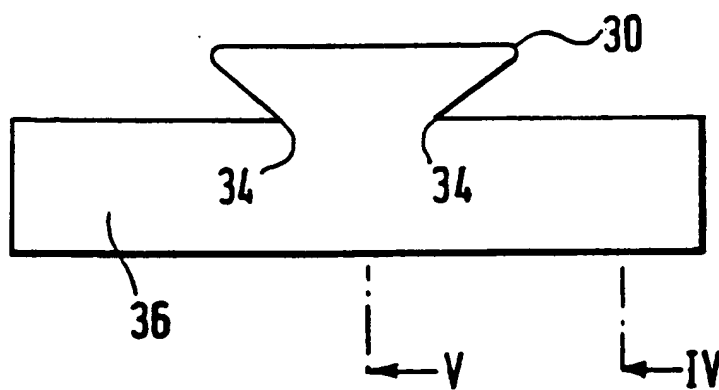


Fig. 3B.

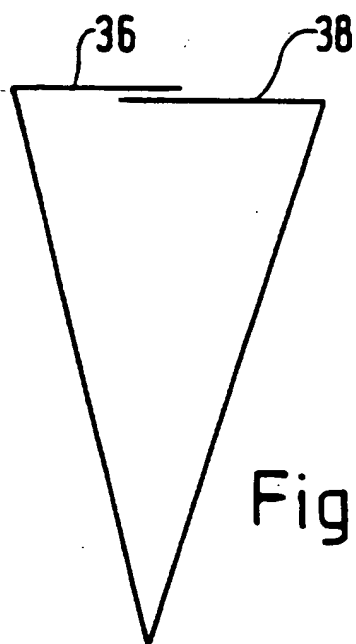


Fig. 4.

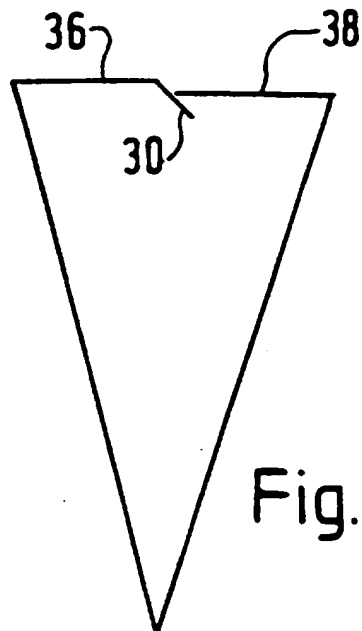


Fig. 5.

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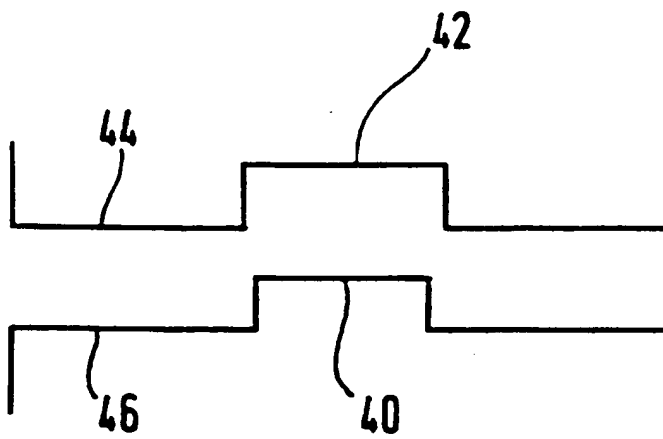


Fig.6.

ALIGHT REFLECTOR

The present invention relates to a reflector for a light fitting, typically but not exclusively of the type used with fluorescent light fittings.

5

Conventionally, this type of reflector has been constructed from aluminium. This material is not ideal for this application. Aluminium is readily marked by fingerprints during handling and ultimately this results in indelible imperfections being formed on the reflective surfaces of the reflector. These
10 imperfections reduce reflection efficiency and also produce an unsightly appearance. For this reason, aluminium reflectors are usually handled by personnel wearing cotton gloves which increases costs in terms of increased inconvenience and also of the cost of the gloves.

15 Furthermore, aluminium is not susceptible to welding or soldering and the reflectors must therefore be constructed using labour intensive techniques such as rivetting and bending of tabs using hand or power tools.

Our copending application Nos. 9506846.6 and 9506847.4 describe in
20 greater detail the problems of prior art reflectors and the general construction of the type of reflectors which are the subject of the present application and this material is therefore incorporated herein by reference.

According to the present invention, there is provided a reflector for a light
25 fitting, the reflector being constructed substantially from a resiliently flexible light-reflective material and including a resilient tongue arranged such that the distal end of the tongue is wider than its proximal end, the

tongue being inserted through a slot whose length varies with its width between a length only slightly greater than the narrowest width of the tongue to a length significantly greater than the narrowest width of the tongue.

- 5 The use of a resiliently flexible material permits novel construction techniques to be used which can be implemented without the need for tools. Preferably, the material is a plastics coated thin reflective foil (typically of aluminium) which is resistant to marking and highly reflective. This type of material is described in our above-mentioned copending applications.

10

Preferably, the slot is generally V-shaped and is arranged to receive two tongues in a relatively V-shaped configuration. The variation in length of the slot may be achieved by forming an extension into the slot at the top of the V-shape, in the form of a segment of a circle. This conveniently

- 15 separates the upper portions of the tongues to maintain their V-shaped configuration.

Advantageously, the slot may be divided into a plurality of slots by one or more cross members extending across the slot for receiving a tongue in each

- 20 respective slot.

Our co-pending application No. 9506846.6 describes the securing of V-shaped members using a transverse locking strip arranged to be coplanar with the material in which the slot is formed. The present arrangement is yet

- 25 easier to assemble and is therefore preferred.

According to a second aspect of the invention, there is provided a reflector for a light fitting, the reflector being constructed substantially from a resiliently flexible light-reflective material and including a resilient tongue arranged such that the distal end of the tongue is wider than its proximal
5 end, the tongue being engaged with a corresponding mouth arranged such that the entrance to the mouth is narrower than the widest part of the tongue and the width of the back of the mouth is only slightly greater than the narrowest part of the tongue.

- 10 Preferably, the tongue extends from a first member which has shoulders formed either side of the proximal end of the tongue, and the mouth is formed in a second member which has corresponding shoulders formed either side of the entrance to the mouth, the shoulders of the first member being arranged to overlie the shoulders of the second member and the tongue
15 being arranged to underlie the second member beyond the back of the mouth in the direction of extension of the tongue for the first member.

This arrangement prevents the two members being collapsed or crushed together and also prevents them being pulled apart in the direction of
20 extension of the tongue. Furthermore good lateral location between the two members (transverse to the tongue) is provided..

According to a third aspect of the invention, there is provided a reflector for a light fitting, the reflector being constructed substantially from a resiliently
25 flexible light-reflective material and including a generally rectangular tongue extending from a first member and inserted beneath the rear of an indent formed in the edge of a second member adjacent the first member, the

indent having a generally rectangular configuration only slightly larger than that of the tongue and the shoulders of the first member which are formed either side of the tongue, being arranged to lie over the corresponding shoulders of the second member which are formed either side of the indent.

5

This arrangement provides good relative lateral location of the two members and prevents the two members being crushed together.

These construction arrangements take advantage of the resilient flexibility
10 of the material to allow different fastening and location arrangements than have been used before in this field. This results in faster assembly of the reflectors than has previously been possible. Furthermore, the joints described above provide improved torsional stiffness for the reflector as a whole.

15

The invention will now be described by way of example with reference to the drawings in which:

Figure 1A is a side elevation of a tongue in accordance with the first aspect
20 of the invention;

Figure 1B is a front elevation of a slot in accordance with the first aspect of the invention;

25 Figure 2A shows an alternatively configured tongue in accordance with the first aspect of the invention;

Figure 2B shows an alternatively configured slot having a cross member, in accordance with the first aspect of the invention;

Figures 3A and 3B are plan views of a mouth and tongue respectively in accordance with the second aspect of the invention;

Figure 4 is a cross-section along line IV-IV of Figures 3A and 3B of a joint assembled from the mouth and tongue of Figures 3A and 3B;

10 Figure 5 is a cross-section along line V-V of Figures 3A and 3B of a joint assembled from the mouth and tongue of Figures 3A and 3B; and

Figure 6 is a plan view of a tongue and indent in accordance with the third aspect of the invention.

15

With reference to Figures 1A and 1B, a tongue 2 is aligned ready for insertion into a slot 4. Hidden behind the tongue 2 and its supporting member 6 is a further member and tongue coupled to the shown member 6 and tongue 2 by a fold 8 at its lower edge. In end elevation the members form a V-shape. The upper indent 10 and lower indent 12 formed at the junction of the tongue (at its proximal end) with the member 6 are dimensioned to fit snugly into the slot at its longest positions 14, 16. These positions are formed in two corners and the length of the slot is reduced between these two corners by a circular segment-shaped extension 18 extending from the top of the V-shaped slot 4. The extension 18 serves to force apart the two members 6 to retain their V-shaped configuration. This

20
25

construction is especially suitable for locating cross-or vee-blades in the outer walls of a reflector.

With reference to Figures 2A and 2B, an alternative configuration is shown
5 with like parts numbered the same as in Figures 1A and 1B. In this configuration, however, a cross member 20 divides the slot in two. The member 6 correspondingly supports a "tongue" which is divided in two to form two tongues 22,24. In other respects, the construction is similar to that of Figure 1.

10

Figures 3A to 5 show a joint which is suitable for fastening together the inwardly turned tops of a vee or cross blade in portions of the blade which are not secured by passing through another blade or an outer wall of the reflector.

15

A tongue 30 is dimensioned for insertion in a corresponding mouth 32 such that the neck of the tongue 30 formed by narrowed portions 34 formed at the proximal end of the tongue 30 are of similar width to the widest part of the mouth 32.

20

With particular reference to Figures 4 and 5, the relative overlapping of the tongue and mouth and their respective support members 36, 38 can be seen (with the deflection angles of the members 36, 38 and tongue 30 exaggerated for clarity).

25

Figure 6 shows a tongue 40 and indent 42 having similar application to the joint of Figures 3A to 5. The joint operates in a similar way and also resists crushing and lateral sliding of the respective support members 44, 46.